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ABSTRACT

Computers frequently are not utilized adequately or optimally in classrooms. However, selected principles of learning are applicable to computer and software usage. They include: (1) meaningful and achievable exercises; (2) sequential learning; and (3) purposeful content. Learner interest, motivation, and balance among objectives are significant considerations in computer instruction. The types of software selected for student use should reflect definite social studies goals, and diverse kinds of software programs, based on established objectives, need to be utilized in ongoing lessons and units. Those programs include: (1) drill and practice; (2) tutorials; (3) diagnosis and remediation; (4) simulations; and (5) games. Different types of educational philosophies, such as experimentalism, idealism, realism, and existentialism, may be used in computerized classroom settings. Computers can be successfully used with both a behavioristic approach, stressing a logical, sequenced curriculum, or a humanistic approach, emphasizing student-teacher planning and an open curriculum. (JHP)

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Computer Use and the Social Studies

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Computer Use and the Social Studies

Computers are common in the school setting. Too frequently, they are not utilized adequately. The computers are there, but they need to be used optimally in the classroom setting.

In society computers and computer service abound. Computers are common then in all types and kinds of businesses, including supermarkets, banks, and hardware stores, among others. School and society should not be separated. Since computers are fully in evidence in society, students in the school curriculum need to become proficient in utilizing that which is positive, efficient, and beneficial to people. The intent of computer use, as well as its consequences, will assist in determining its positive utilization.

Principles of Learning and the Computer

There are selected principles of learning applicable to computer and software use. These principles have stood the test of time and should be used flexibly in selecting objectives, learning activities, and appraisal procedures. In computer and software use, students need to attach meaning to

ongoing learning opportunities. If learners experience meaningful activities, they understand what has been learned. Opposite of meaningful content are those experiences not understood and not making sense. Software then needs to be on the present achievement level of the involved student. Based on the present achievment level of the student, new learnings are to be attained by students. The new content must be meaningful and achieveable. Frustration and failure set in if students do not perceive meaning in what is being learned.

Secondly, students need to experience quality sequence in computer and software use. With proper and appropriate sequential learning, success in learning may well be in the offing for the involved student. Success in learning assists in developing an improved self concept. Positive self concepts aid students to improve and to achieve in the social studies. Thus, it is necessary that software components possess sequential steps in learning. If the steps in learning are too far apart within the software components, the student may experience failure. Rather, software must

be tried out in pilot studies to take the weak spots out of its program.

Thirdly, quality software must contain purposeful content. If learnings are purposeful, students perceive values in acquiring the content, skills, and attitudes. Teachers must assist students to perceive purpose in utilizing computers and software programs. To develop purpose within students inductively, the teacher may ask selected questions covering content in the software to guide learners intrinsically to understand reasons for participation in and interacting with the computer program(s). To stress deduction, the teacher may clearly and concisely explain to learners values of the software program to be utilized. If students perceive purpose in learning, an increased desire to attain and to achieve should be in evidence.

Interest in learning is important. Software use should capture learner interest. If students perceive interest in learning, effort is involved in achieving objectives in the social studies. Too frequently, the student lacks interest in the ongoing learning opportunity, thus achievement is at a rather low level.

Rather interest and effort need to become one and not dual in nature. With a high degree of interest in the software program, the student should apply continuous effort in learning.

Motivation is important in achieving vital ends in computerized instruction. With proper motivation, the learner has an increased energy level for learning. Stimuli from the software content then provides for a higher level of motivation. An eager learner desires to achieve and is motivated to attain definite objectives.

Balance among objectives is significant in emphasizing software and computer instruction. Generally cognitive (intellectual domain) objectives are stressed. This emphasis needs to be balanced with affective and psychomotor goals. Affective objectives stress a love for learning. Life itself consists of continuous, sequential learning. Psychomotor objectives reflect the use of the large and fine muscles. Learning opportunities can be developed, psychomotor in nature, which correlate with the software presentation. These activities may include

construction experiences, model making, pantomimes, creative dramatics, as well as art tasks. Cognitive objectives should stress critical and creative thinking, problem solving as well as making inferences and predictions.

To summarize guidelines to be utilized in using software and computers, students need to experience meaningful learnings, sequential activities, purposeful tasks, interest in lessons, motivation and stimulation, as well as balance among objectives.

Kinds of Software Programs

Software selected for students in the social studies depends upon the purpose involved. Goals are to be achieved by students when using computers in the curriculum. Software programs should not be utilized for the sake of doing so, but rather definite reasons are inherent for the utilization of a specific learning opportunity.

Selected students may need to experience software emphasizing drill and practice. There are definite knowledge items important to learn, and yet these students have not done so and need drill and practice

learning opportunities. Software emphasizing drill and practice in the social studies must stress that which is salient and important. The software should also emphasize subject matter necessary to be learned in the social studies unit being taught. The drill and practice opportunities need to capture student interests. Being interested in the content will assist learners to master the needed subject matter. Drill and practice experiences have frequently been boring to learners. Routine procedures of subject matter accquisition have been utilized. Software and computer use provide another media for students to learn through drill and practice.

Drill and practice activities should be sequential to the students own unique perception. Students need to interact very frequently to content presented on the monitor. A oneway street of communication in lecture form from what is on the monitor to the student is to be frowned upon. Rather, the learner must make frequent responses to answers wanted to questions presented on the monitor. Learners need to receive frequent feedback from responses made. Thus, for each

question presented, the student makes a response. Based on the response, feedback is provided on the monitor to let the learner know of the adequacy of his/her response. If a correct response was made, a reward should be presented on the screen. Excessive time should not be given to show the reward. Rather, the reward clearly shows the involved student the correctness of the response made. Incorrect responses are remediated.

A second type of software stresses tutorial experiences for students in social studies. Tutorial software emphasizes new subject matter for student attainment. New content must be related to previously developed facts, concepts, and generalizations. Tutorials then need to emphasize proper order of experiences for students. Learners need to interact frequently to questions related to content presentation in the tutorial. Active participation, not passive recipients, is important in tutorials. These programs provide opportunities for optimal growth. Debugging of software is a must. Thus, the content contains no spelling, punctuation, and capitalization errors.

Adequate pilot studies of the software have taken out the inherent weaknesses. The subject matter is sequential. With successful experiences, students may develop quality attitudes. Related learning to the software tutorial can emphasize psychomotor learnings, such as creative art endeavors. New subject matter is to be learned by the student in the tutorial, and the learner is motivated toward achieving definite objectives.

A third type of software in the social studies stresses diagnosis and remediation. To diagnose, specific errors are pointed out on the monitor pertaining to objectives being emphasized. After diagnosis, a program on a disc provides for remediation endeavors. Diagnosis could emphasize at which point a student cannot locate an entry in an encyclopedia or dictionary. Remediation would emphasize tasks, sequential, to take care of the difficulties.

Software with a diagnostic remediation emphasis must truly pinpoint learner difficulty. Very precisely, the problematic error must be located. Equally salient is that the remediation endeavors

assist the learner in taking care of the problem-area. A direct relationship must exist between the diagnosis and the remedial concepts.

Too frequently, software has not been effective in identifying specific problems in learning faced by a student. A further problem exists when the remediation work stressed in the software fails to do its specific task. Quality software identifies and remediates problematic situations.

A fourth kind of software in social studies stresses simulations. A simulation emphasizes role playing. A real life-like series of situations are presented. Problem solving is in emphasis in that students make sequential choices from dilemma situations presented on the monitor. For each choice made, the student receives feedback, prior to the next decision to be made.

Simulations should not present artificial situations for students. The programmer must develop reality into the software program. Low risk decision-making is involved to the learner. Thus, a student does not personally experience the negative

when responses are made. In life itself, incorrect decisions can be quite defeating to the chooser. The consequences of a choice can indeed be harmful to the student in the actual, societal arena. In simulations, the situations are reality based and as much as possible society based; however, the consequences of each decision is unreal in terms of negative choices made from among alternatives presented on the monitor or screen. The student is then shielded from the harsh realities of life.

Simulations place high value on students learning to make choices and decisions. The choices and decisions are based on reality and realness, rather than the fanciful and the absurd. Feedback is provided to each student based on the command typed into the computer. The learner can then judge the adequacy of his/her response. Problem solving is in evidence when a decision needs to be made based on alternatives. Several students can be involved in a simulation learning opportunity.

A fifth kind of software stresses the playing of games. Several students will be involved in the

playing of a game. Each attempts to be the winner. Thus, a student may select, from among alternatives, whether to play for five, ten, fifteen, or twenty points in attempting to answer a question pertaining to social studies. The lower the point value, the easier it is to answer that question. The student then may play it safer by attempting to answer an easier question. Or, more risk may be stressed by attempting to answer a question correctly with each having a higher point value, including twenty points received for answering a single question correctly. At the end of the game, the student with the highest total score is the winner of the game.

Games tend to motivate students to achieve. Play has long been advocated as an important means of learning. Games emphasize the play concept. Since play is enjoyable to students, it can be a significant vehicle to encourage learner progress and achievement. Software game development must emphasize student interest. Interest in an activity makes for effort. Each student needs to be challenged to attain optimally in games. The games help students to achieve definite

objectives. Much learning of facts, concepts, and generalizations can come from gaming software. The games, if possible, should relate to ongoing lessons and units in the social studies.

Philosophy of Education and the Computer

There are definite philosophies, different from each other, which may well be utilized with software and computers. One philosophy, namely experimentalism, stresses that students identify and solve life-like problems in the environment. The problems need to come from society. School and society should be integrated, not separated from each other.

Flexible steps are involved in emphasizing problem solving in the classroom. First of all, a problem needs identification and selection. The problem must be clearly stated. A variety of learning opportunities need to be provided so that learners are stimulated to select a problem. Next, data or information needs gathering in answer to the problem. Computer databases can assist in securing the needed contents. A hypothesis is then developed. The hypothesis is tentative, not absolute, and is subject to testing.

What is to be learned has utilitarian values in the social studies. Databases and computer use provide solutions to problems which are life-like in the societal arena. Subject matter is not learned for its own sake, but it is used in problem solving situations. Simulations work well in decision-making situations involving the solving of problems.

Simulations emphasize reality with reduced levels of personal risk taking. Vicarious experiences are then involved for students. Experimentalism likes to go one step further in emphasizing the identification and solutions of real problems existing in the societal arena.

Idealism, as a second philosophy, stresses an idea centered social studies curriculum. Vital subject matter may well be learned for its own sake. When using quality tutorials, vital facts, concepts, and generalizaitons can be acquired by learners. The major objective in idealism, as a philosophy of education, is to assist students to achieve content. In addition to software assisting learners to secure worthwhile subject matter, textbooks, workbooks, worksheets, and

selected audio-visual materials provide worthwhile experiences for students. The learning of subject matter can guide students in the future to become good citizens in society. Education is preparation for life, that is to interact with others in society.

The teacher as an idealist is well qualified and prepared to teach subject matter. This teacher needs to be highly knowledgeable of software which will assist students to achieve important facts, concepts, and generalizations. The intellectual facet of a student's development must receive primary emphasis in teaching and learning. Thus, the mind or mental development needs to receive primary stress in guiding students to achieve objectives. Mind is real and needs stimuation through a variety of worthwhile learning activities stressing an idea centered curriculum.

Idealism emphasizes definite ideals or moral standards for all students. Immanuel Kart (1724-1804), a leading idealist, advocated the Categorical Imperative for learner acquisition. The Categorical Imperative stated that people should be treated as end and not as means to an end. The means to an end would

stress using individuals as stepping stones to achieve objectives. The Categorical Imperative is similar to the Golden Rule -- "Do unto others as you would have others do unto you."

From software and computer instruction, students may acquire vital ideas. A subject centered curriculum is then in evidence. Tutorials, as a type of software, would especially be relevant in presenting content sequentially to learners.

Realism, as a third philosophy of education, advocates that one can know the real world and reality as it truly is, in whole or in part. A blue print or duplicate of the natural and social environment is then received. Since the real world can be known, in whole or in part, specifics or measurably stated objectives can be emphasized in the social studies. With precise ends, the learner has either been or not been successful in goal attainment. Diverse types of software programs offer students opportunities to achieve measurably stated objectives. Relevant objectives need to be in the offing. Thus, drill and practice, tutorials, diagnostic and remediation,

simulations, and games stress specific goals. When responding, for example, to a drill and practice item, a learner is either right or wrong. Feedback to the learner is provided for each response he/she has made. At the end of a program, the student knows what per cent of the total items he/she responded correctly to.

Objectivity is important to a realist. In scoring results to test items in a software program, there are no subjective evaluations. The student responds correctly or incorrectly to sequential test items covering content read on the monitor. Thus, there is an objective world, outside the framework of the observer. This objective, outside world needs to be known in whole or in part by the student as he/she attains sequential objectives.

Existentialism emphasizes decision-making by students in terms of objectives, learning opportunites, and appraisal procedures. To make choices is to be human. Permitting others to make decisions for the self demeans the latter. Software and computers can provide learners with opporunities to make choices. Simulations emphasize the making of decisions from

among alternatives. Which decisions to make in a simulation are the perogative of the student. There could also be decisions made as to which simulations to pursue sequentially and which to omit.

A learning centers philosophy may harmonize well with existentialism as a philsophy of education. The student may then select which kinds of software to pursue pertaining to an ongoing social studies unit. Adequate software packages need to be available for sequential choices. Students need to select those learning opportunities which stress perceived purpose interest, and meaning. Other kinds of teaching materials may also provide activities as experiences at the diverse learning centers in the classroom setting. These include reading and audio-visual aid activities.

To advocate existentialism in the social studies, the individual learner chooses whether to work by the self or with others in a committee setting. Knowledge is subjective, not objective, to the decision-maker. Each social science discipline may provide content in the social studies which stresses the subjective in terms of knowledge, values, and beliefs. Ultimately in

life, the decision-maker can make choices, among alternatives, which are truly awe inspiring.

Microcomputer Use and the Psychology of Learning

Behaviorism, as a psychology of learning, advocates the utilization of behaviorally stated objectives. These objectives are arranged in ascending order of complexity. The teacher selects learning opportunities for students to attain the ordered objectives. Only those stimuli stressed in the objective should be contained in the learning activity or experience. After instruction, the teacher can measure if a learner has or has not been successful in goal attainment. If the objective has been achieved, the student is ready to attain the next sequential end. Students may do their own pacing to achieve optimally within the framework of sequentially stated objectives. If a learner does not achieve an end, a different teaching strategy needs to be in the offing. Measurably stated objectives and observable results are wanted from students after the learning opportunity has been implemented. Drill and practice, tutorial, diagnostic and remedial software, in particular,

emphasizes the thinking of behaviorists when emphasizing a specific teaching strategy.

Humanism, as a psychology of learning, emphasizes concepts, such as student-teacher planning, student decision-making, as well as an open curriculum. Students with teacher guidance might then select software packages which meet the formers own personal needs, interests, and purposes. Goals reside within the learner in choosing sequentially what to learn, according to humanism. A psychological curriculum is then in evidence. In comparison, behaviorism stresses a logical curriculum in that the teacher sequences objectives for students to attain.

In Summary

The classroom teacher must emphasize definite principles of learning when software and computers are utilized in the curriculum. These principles of learning when implemented in teaching-learning situations assist students to achieve more optimally in the social studies.

Diverse kinds of software programs need to be utilized in ongoing lessons and units. Drill and practice, tutorial, diagnosis and remediation, simulations, and games are different from each other in terms of objectives stressed. The kind of software selected for student use must reflect definite goals in the social studies.

Philosophy of education has much to say as to how software and microcomputers will be utilized in the classroom. Diverse philosophies such as experimentalism, idealism, realism, and existentialism may be utilized wisely in the classroom setting. An eclectic philosophy may be an end result.

Classroom teachers need to be clear on behaviorism and humanism as psychologies of learning. Psychologies used must help students to achieve optimally.

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